for the proper equipment of the good physician, for this alone enables him to understand the results of physical examination and anamnesis. Pathological knowledge and work are sterile without clinical experience, and clinical work without pathology is a barren desert.

Bacteriology and the clinical laboratory, which are a valuable part of my department, are very ably taught and conducted by Professor Robert Zeit, who will also render in this bulletin a report of the scope of his work.

METHOD OF TEACHING IN THE CLINICAL LABORATORY OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL.

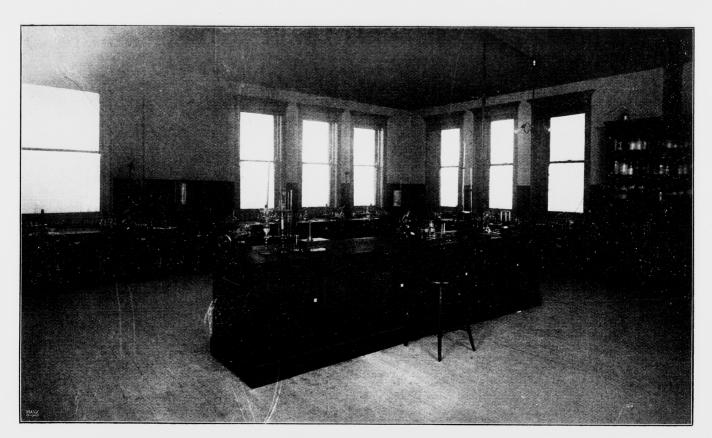
By F. ROBERT ZEIT, M. D.

In the Clinical Laboratory the student is made to apply his resources and knowledge gained in the Physiological, Chemical, Pathological and Bacteriological laboratories and apply the same to actual cases, such as the various College and Dispensary Clinics may furnish. The Junior Class is divided into six sections of from 12 to 14 students, and every section spends five weeks, four hours a day, in the practical application of those diagnostic methods of scientific medicine which will most likely be in daily use by the student after graduation.

If the older graduate has the advantage of practical experience over the young man, the latter, upon his graduation, will soon show that his better knowledge of laboratory methods and his consequent greater diagnostic skill have endowed him with a formidable weapon in his future struggle for existence. He cannot help but rise, thereby, in the estimation of his older professional brethren, as well as that of his patients.

The nature of the work in the Clinical Laboratory is that of actual practice. In the various laboratory courses of the Freshman and Sophomore years the student has been taught the whole subject usually for the sake of completeness. All material has been prepared for him. He does not have to search for a certain reaction, lesion or germ. He finds everything ready. No search is required. The teacher has prepared it all for him.

In the Clinical Laboratory the conditions are just reversed. He receives only "Unknowns" and is now placed before the necessity



CLINICAL LABORATORY.

of employing his resources, gained during his former years of laboratory study, in a practical way. He now sees in a new light all that he has learned before. He learns what is necessary for him to know of the various Laboratory Courses through which, perchance, he may have wandered thoughtlessly. He is made to think for himself, instead of cramming his mind with a multitude of facts. The writer has been in actual practice, medical and surgical, for over 10 years, and first devised this course three years ago for Post Graduate Students with a view to the practical application of those laboratory methods of diagnosis which the general practitioner must know and is most likely to use. The success of this undertaking attests its popularity.

It is a pleasure to me to see how students after a short time in the Clinical Laboratory change from a kind of listless nonchalance to one of real interestedness in their laboratory work. Individual competitive pride in making a correct diagnosis and the stigma of failure by careless examination soon bring a class of twelve or fourteen men to such an efficiency that they may all be safely trusted with the usual laboratory examinations, knowing that their fellow students and the teacher make the same examinations and will subject the individual to criticism if negligent in his search.

The subjects taught are:

I. CLINICAL BACTERIOLOGY.

Bacteriological Diagnosis of Tuberculosis, Diphtheria, Typhoid Fever, Gonorrhoea, and Suppurative Processes.

II. HEMATOLOGY.

Histology of the Blood. Technique of a complete blood examination. Pathology of the Blood. Differential Diagnosis with exercises.

III. DIAGNOSIS OF TUMORS AND CURRETTMENTS.

Pathology of Tumors and Endometrium.

Exercises in Diagnosis of several hundred Tumors and Currettments.

IV. URINE ANALYSIS.

Chemical and Microscopical Examinations.

V. EXAMINATIONS OF STOMACH CONTENTS.

Lectures and demonstrations, together with practical exercises, are held daily. The material from the different clinics is used and is supplemented whenever necessary by material kept ready for the various exercises. Every student is assigned some special subject on which he looks up the literature and prepares a short essay giving the literature and the results of his personal investigations, together with specimens to substantiate his views. The best of these are read and discussed before the class.

Daily conferences are held and individual efficiency ascertained by private quizzes. A laboratory note book is kept by each student containing the lectures and personal observations on all material submitted for examination. At the end of the course a written examination and a practical examination in laboratory diagnosis covering the different subjects taught, are given.

PERNICIOUS MALARIA.*

BY ARTHUR R. EDWARDS, A. M., M. D.

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Provident Hospitals, etc.

In the widest sense, pernicious malaria is one which threatens life. It is malaria characterized by severe obstinately recurring fever, pronounced intractable anaemia, pernicious visceral symptoms, frequently with abortive paroxysms without chills, considerable depression, tendency to recurrence and the presence in the blood of the aestivo-autumnal form (or forms, as some will have it) of the plasmodium malariae.

Pernicious malaria constitutes but a small proportion of cases of aestivo-autumnal malaria, yet a few pernicious cases have occurred from infection with the ordinarily benign tertian parasite (Ziemann, French and one of our own observation).

The causal factor is the aestivo-autumnal parasite, whose fuller description falls to Drs. Wells and Preble,—a plasmodium called aestivo-autumnal to contrast it with the milder vernal organisms, a small, round endoglobular parasite, at first unpigmented, one-eighth to pre-

Read before the Chicago Medical Society, December, 1900, Symposium on Malaria.